

THE EMOTIONAL COMPONENTS OF REJECTION SENSITIVITY AS A MEDIATOR BETWEEN BORDERLINE PERSONALITY DISORDER AND BIASED APPRAISAL OF TRUST IN FACES

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Abstract

Objective: Starting from discordant results in the literature, our contribution aims at clarifying the mediating role of rejection sensitivity (RS) in the untrustworthiness bias in Borderline Personality Disorder (BPD).

Method: To do so, we examine whether BPD traits are connected to an untrustworthiness bias toward neutral male and female faces in a non clinical sample of young female college students (N = 110). Unlike previous research, we examine the potential role of the different components of RS (emotional and cognitive) separately, and we consider the anger dimension as potentially relevant for trust ratings.

Results: Our results demonstrated that only the emotional components (anxiety and anger) and not the cognitive (expectation) mediated the association between BPD traits and trust ratings.

Conclusions: We discussed the importance of considering all three components of RS for a better understanding of the relation between BPD and trust appraisal.

Key words: borderline personality disorder, untrustworthiness, rejection sensitivity, anxiety, anger

Declaration of interest: none

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Introduction

Borderline Personality Disorder (BPD) is a complex and severe diagnosis, defined by impulsivity and instability, especially in the domain of interpersonal relationships (APA 2013). Most of the typical symptoms of BPD occur within interpersonal contexts and patients with BPD usually display severe difficulties in interpersonal relationships. Therefore, in the last decade, many researchers focused on understanding the possible deficits in the perception, processing, and emission of social signals that sustain the impaired social relations of BPD patients, i.e., their deficits in social cognition (Adolphs 1999). A number of studies have been conducted and recent reviews (Roepke et al. 2012; Herpertz and Bertsch, 2014) have underlined, among other problematic areas, a general impairment in cooperation as a core deficit of the disorder (Thielmann et al. 2014). Cooperative behavior relies on trustworthiness judgements about others or, in other words, on “second-order trust”, i.e. the belief that someone can be trusted (Jansson and Eriksson 2015). Different studies suggested that BPD patients have a generalized mistrust of others resulting in the appraisal of greater untrustworthiness in neutral faces, greater sensitivity to others’ untrustworthiness and a behavioral untrustworthiness bias (Fertuck et al 2013, Miano et al. 2012).

Another feature that impairs the elaboration of social stimuli of patients with BPD is their inclination toward Rejection Sensitivity (RS). RS is a cognitive and affective disposition to anxiously or angrily expect, readily perceive, and overreact to social rejection (Downey and Feldman 1996). RS leads to negative and hurtful dispositional attributions and interpretations of the interactions with others and a typical manifestation of RS is hypervigilance toward rejection cues. Several studies in literature support the evidence of a strong connection between RS and BPD traits. First, individuals high in RS have interpersonal difficulties similar to those of patients with BPD (Downey and Feldman 1996), such as concerns over abandonment and conflicts in romantic and social relationships. Second, compared to control participants, BPD patients believe in a greater extent that they will be abandoned and rejected (Arntz et al. 2004, Arntz et al. 1999, Ayduk et al. 2008). More specifically, RS is higher in individuals with BPD compared to both healthy controls and Social Anxiety Disorder (Staebler et al. 2011). Finally, experimental studies have even demonstrated that BPD patients perceive rejection even when actually included (e.g., De Panfilis et al. 2015). In sum, BPD patients may show strong impairments in cooperative behavior partly because of their untrustworthiness bias and high levels of rejection sensitivity.

Despite the interest toward both untrustworthiness

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bias and rejection sensitivity in BPD, only few studies focused on the possible connections between these two main features. Moreover, these few researches obtained divergent results. On the one hand, Miano et al. (2013) hypothesized that individuals with BPD features may be more negative in the trust appraisal of others because of their anxiety about the possibility of being rejected or abandoned. They found that participants with high BPD traits scored significantly higher on untrustworthy facial appraisal as compared to participants with low BPD features. Moreover, RS mediated the effect of BPD features on trust ratings. On the other hand, Masland and Hooley (2017) investigated the influence of irrelevant emotional information on trustworthiness appraisal in a BPD sample versus a control group. Participants rated unfamiliar faces on trustworthiness after an affective priming paradigm that exposed them to negative, neutral, or positive information. Results confirmed the untrustworthiness bias of the BPD sample. BPD participants made more untrusting appraisals regardless of the prime condition and they were more influenced by negative primes relative to the control group. However, more central to our concerns, both effects were not mediated by RS.

To clarify this contradiction, it may be useful to focus on the differences in the two procedures used by Miano et al. (2013) and by Masland and Hooley (2017). First, Masland and Hooley (2017) used a priming procedure to introduce a context for trust appraisal whereas Miano et al. (2013) did not. The influence of contextual factors on the expression of the untrustworthiness bias in BPD (see also Miano et al. 2016) suggests that trustworthiness is not a stable feature in BPD. The context might also affect the mediating role of RS. Second, Miano et al. (2013) assessed trust appraisal together with 16 other dimensions whereas Masland and Hooley (2017) only measured trust. Considering that Miano et al. (2013) pointed out that, among the 16 dimensions, some were valenced and related to BPD-specific views of others and self, it is possible that trust ratings were also influenced by the context set by the other dimensions of evaluation (i.e., halo effect). Finally, it is not clear whether there are differences in the stimuli each study used. Miano et al. (2013) used 12 Caucasian male and female neutral faces in equal proportion whereas Masland and Hooley (2017) used 50 male and female neutral faces without indication about the race. All these differences in the procedure confer a generalizability of the untrustworthiness bias in BPD but at the same time, they could explain the mixed results concerning the mediating role of RS.

Moreover, it should be noted that even in presence of a mediating role of RS (Miano et al. 2013), the specific contribution of the emotional and cognitive components of RS has not been investigated. RS is commonly measured through the Rejection Sensitivity Questionnaire (RSQ; Downey and Feldman 1996) and the standard way of scoring the RSQ responses is to consider anxious and angry expectation of rejection as the sum of the cross products between anxiety/anger and expectation responses. Such a scoring method only considers the interaction between rejection expectation and emotional activation and does not take into account the distinctive role of the two components separately. Recent work have challenged this scoring method. For example, Zimmer-Gembeck and Nesdale (2013) showed in a young adult sample that expectations and anxiety were associated with withdrawal responses, whereas anger was not. Moreover, when considered separately the cognitive and emotional components of RS play different roles for predicting interpersonal problems among adolescents (Preti et al. submitted) whereas their

interaction had no predictive validity. Furthermore, both studies (Miano et al. 2013; Masland and Hooley 2016) used only one emotional component that is anxiety. The original model of RS considers both anxiety and anger as anticipatory defensive affects accompanying the rejection expectations and posits that, according to the specific emotion activated, specific behavioral responses can be expected (London et al. 2007). Given the crucial role of anger in BPD (Zanarini et al. 2005, Trull 1995) and the inverse relation between negative emotion such as anger and trust (e.g., Dunn and Schweitzer 2005), it would be interesting to investigate the specific role of the angry component of RS in relation to BPD.

The present study aims at clarifying the potential mediating role of RS on the untrustworthiness bias according to which high BPD show lower trust. To do so, we examine whether BPD traits are connected to an untrustworthiness bias toward neutral male and female faces in a non-clinical sample of young female adults. As in Miano et al. (2013) study, we considered BPD traits as a continuous variable and not as a basis to create two groups as in Masland and Hooley (2017) study. Moreover, to disentangle the potential role of the components of RS, we measure both anxiety and anger as emotional components of RS and we compute three single scores, namely Rejection expectation, Anxiety for rejection, and Anger for rejection. We thus aim at testing different mediation models in which the distinctive emotional and cognitive components of RS mediate the association between BPD traits and trust ratings of neutral faces. We hypothesize that previous mixed findings might be due to the fact that RS has been considered and measured without taking into account its cognitive and emotional components separately. We thus anticipate that RS might mediate the relation between BPD traits and trust appraisal only considering its three components (cognitive/expectations, emotional/anxiety, and emotional/anger) separately. In particular, we anticipate that Anger for rejection might play a role in this association.

Method

Participants and Procedure

A hundred and twenty-five undergraduate women (M age = 22.13, SD = 2.69) took part to a one-session study (approximately 45 minutes). Participants rated the trustworthiness of neutral face stimuli and completed the Adult-Rejection Sensitivity Questionnaire (RSQ, Downey and Feldman 1996; Downey et al. 2006) and the Borderline Personality Disorder Checklist (BPDCL, Giesen-Bloo et al. 2006). At the end of the study, participants were thanked, debriefed, and received course credit for their participation, if applicable. The study has received approval from the University ethics committee.

Materials

Trust evaluations. The participants rated on a 7-point Likert scale the trustworthiness of each of 48 black and white photographs of unfamiliar Caucasian faces presented in a random order. We used 16 different identities (8 male and 8 female) that had been selected from a pretest. The pretest consisted of 30 undergraduate female students (M Age = 23.2, SD = 2.2) selecting the stimulus they detected as “mildly happy” along a continuum of 21 pictures created through morphing from neutral expression to happy expression for 18 different

identities (9 female, 9 male) from the NimStim database. For each identity, we used the average frame chosen and selected 16 identities. In addition to the original stimulus with the straightforward look, we created a left gaze and a right gaze version of each identity by moving the pupils on the right and on the left using Photoshop2. We computed three different scores considering all faces, only male faces, and only female faces, respectively.

Borderline Personality Disorder Checklist (BPDCL, Giesen-Bloo et al. 2006). This self-report questionnaire is composed of 47 items that assess the current severity of specific BPD manifestations during the last month on 9 dimensions (abandonment, relationships, identity disturbance, impulsivity, mutilation, affective instability, anger, dissociation, and emptiness). Using 5-point Likert scales, ranging from ‘not at all’ to ‘extremely’, participants indicated how much they were troubled by the 47 different BPD complaints during the last month. We compute a total BPD score ($\alpha = .95$).

Adult-Rejection Sensitivity Questionnaire (RSQ, Downey and Feldman 1996, Downey et al. 2006). The questionnaire consists of 9 situations in which participants are asked to imagine to make a request to a significant other. Participants indicated whether they would be concerned or anxious about the response to their request on a 6-point Likert scale ranging from “not concerned” to “very concerned” and whether they would expect the other person to honour or reject the request on a 6-point Likert scale ranging from “very unlikely” to “very likely”. In addition, following London et al.’s (2007) suggestion, participants indicated whether they would be angry about the response to their request on a 6-point Likert scale ranging from “not angry at all” to “very angry”. We computed the scores for the three scales separately: Anxiety for rejection, Anger for rejection, and Expectation of rejection ($\alpha = .85$, $\alpha = .90$, and $\alpha = .73$, respectively).

Results

We discarded the data from 15 participants because of random pattern of responses to the questionnaire and the other tasks. The final sample consisted of 110 undergraduate women (M age = 22.21, $SD = 2.75$). Three participants (2.73%) were not Italian citizens. The BPD traits distribution was representative ($M = 82.43$, $SD = 24.02$, range = 47-155) (see **table 1** for the descriptive statistics of all measures).

Correlations

Table 1 reports the correlations between all constructs.

Table 1. Descriptive Statistics and Correlations

| | <i>M</i> | <i>DS</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------------------------|----------|-----------|--------|------|--------|--------|--------|--------|---|
| 1. BPD traits | 82.36 | 23.97 | 1 | | | | | | |
| 2. Expectation of Rejection | 2.20 | 0.58 | .12 | 1 | | | | | |
| 3. Anxiety for Rejection | 3.85 | 1.01 | .36*** | .04 | 1 | | | | |
| 4. Anger for Rejection | 2.78 | 1.11 | .47*** | .04 | .50*** | 1 | | | |
| 5. Trust Ratings (Total) | 3.66 | 0.88 | -.21* | -.07 | -.28** | -.23* | 1 | | |
| 6. Trust Ratings (Female) | 3.94 | 0.95 | -.18 | -.07 | -.26** | -.17 | .96*** | 1 | |
| 7. Trust Ratings (Male) | 3.37 | 0.88 | -.23* | -.07 | -.27** | -.27** | .95*** | .82*** | 1 |

Note. * $p < .05$. $p < .01$. *** $p < .001$

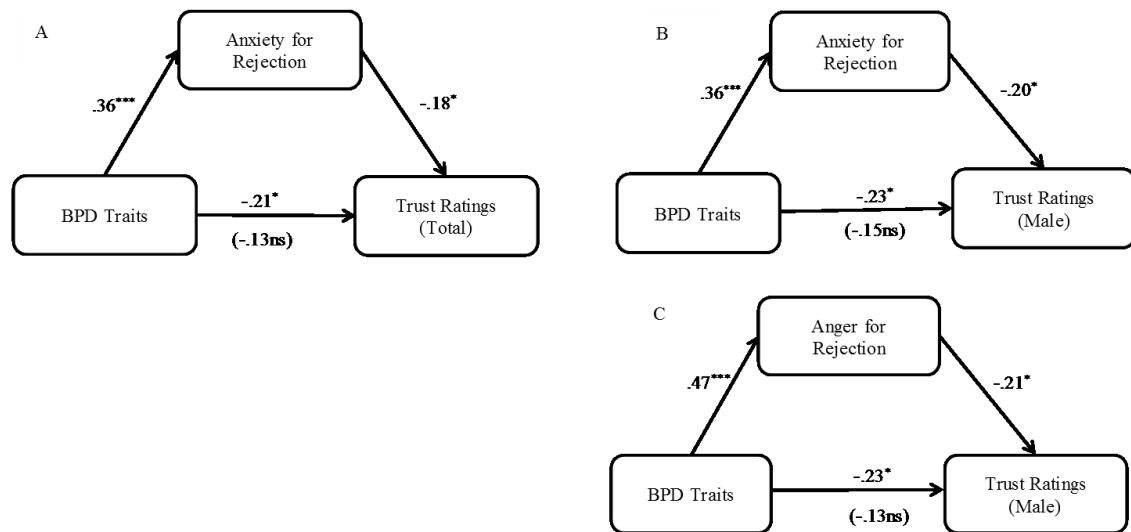
First, there was a significant correlation between BPD traits and overall trust ratings and trust ratings toward male faces but not toward female faces, so that the higher the participants were on BPD traits, the less trustworthy they judged the faces (untrustworthiness bias). Second, the cognitive component of rejection (i.e., expectation) did not correlate with BPD traits nor with the three trust ratings. On the contrary, the emotional component of rejection (i.e., anxiety and anger for rejection) correlated positively with BPD traits indicating that the higher the participants were on BPD traits, the more they would be angry and anxious at the perspective of being rejected. Moreover, the correlations between the emotional component of rejection (i.e., anxiety and anger for rejection) and trust ratings were all significant, with the exception of anger for rejection and trust ratings toward female faces. In general, the more angry and anxious participants would be at the perspective of being rejected, the lower they rated the faces as trustworthy.

Mediations

We hypothesized that the significant effects of BPD traits on trustworthiness ratings could be mediated by the emotional and/or cognitive components of rejection sensitivity. Considering the lack of significant correlations with any of the construct with the cognitive component, we can already rule out its mediating role. Moreover, given the non significant correlations between the trust ratings toward female faces and BPD traits, we only investigated the mediation effects of the relation between BPD traits and overall trust ratings as well as trust ratings toward male faces.

We ran a series of mediation analysis using PROCESS for SPSS (Hayes 2013, Model #4) to test the significance of indirect or mediated effect with bootstrap method considering the two emotional components of rejection separately. For overall trust ratings, anger for rejection appeared not to be a mediator of the relation between BPD traits and overall trust ratings because the effect of anger for rejection on overall trust ratings was not significant anymore when controlling for the effect of BPD traits. Anxiety was a significant mediator with a significant indirect effect, $B = -.08$, $SE = .04$, 95% CI: $[-.18, -.02]$ and a non significant direct effect indicating a full mediation. In other words, Rejection Anxiety fully mediated the effect of BPD traits on trust ratings (see **figure 1**, panel A). For the trust ratings toward male faces, both Anxiety and Anger for rejections significantly and fully mediated the effect of BPD traits, $B = -.08$, $SE = .04$, 95% CI: $[-.16, -.01]$ and $B = -.10$, $SE = .04$, 95% CI: $[-.20, -.03]$, respectively. Anxiety and Anger mediated in a similar extent the effect of BPD traits on trust ratings toward male faces (see **figure 1**,

Figure 1. Mediations by Anger and Anxiety for Rejection of the relations between BPD traits and trust ratings



panels B & C). To sum up there are three mediations of RS for the untrustworthiness bias: Anxiety for rejection on overall trust ratings and toward only male faces whereas Anger for rejection on trust ratings toward only males. One should note that when considering the standard product score of RS, none of the mediations was significant¹.

Discussion

Starting from the discrepancies between two previous research reports (i.e., Miano et al. 2013, Masland and Hooley 2017), this study aimed to clarify whether rejection sensitivity mediates the relation between BPD traits and trust appraisal toward faces. Moreover, based on previous evidence demonstrating the usefulness of considering separately the cognitive and emotional components of RS (e.g., Preti et al. submitted, Zimmer-Gembeck and Nesdale 2013) and of including anger as an emotional component (e.g., London et al. 2007), we tested the potential mediating role of all three components of RS. Our main results are manifold. First, BPD traits are associated with a decrease in trust evaluation of neutral faces but not when considering only female faces. Second, only the emotional components of RS (i.e., anxiety and anger) and not the cognitive component (i.e., expectation) proved to be significant mediators.

The first result provides additional evidence to a demonstrated association between BPD traits and a general untrustworthiness bias (e.g., Fertuck et al. 2013, Masland and Hooley 2017, Miano et al. 2013), confirming this social-cognitive impairment in BPD. This impairment is further demonstrated in impaired cooperative behavior when, for example, BPD patients are engaged in economic games (e.g., King-Casas et al. 2008). Furthermore, considering therapy with

BPD patients, a lack of trust toward the other (i.e., the therapist) that takes the form of intense “paranoid transference” is common, especially in the early phases of treatment (Yeomans et al. 2015). From a theoretical point of view, recent theories on the development of BPD have pointed at the ability to trust others as a major issue (Fonagy and Allison 2014). Moreover, the object relation approach to personality pathology underlines the presence of a polarized negative representation of others as untrustworthy (Yeomans et al. 2015). However, our results showed a non significant association between BPD traits and trust ratings toward female faces. Overall, trust ratings of male stimuli ($M = 3.35$, $SD = .90$) were significantly lower than the female ones ($M = 3.92$, $SD = .98$), $t(1,110) = 11.00$, $p < .001$, effect probably due to the exclusively female sample. Our results could thus point to a particular form of mistrust in interpersonal relationships, i.e. the evaluation of the trustworthiness of opposite-sex individuals. One could hypothesize that such a process is particularly relevant in the romantic relationship dysfunctions that are specifically associated with BPD (Hill et al. 2008, Miano et al. 2017). However, it may not be the case for a male sample for whom females are usually perceived as less dominant and thus more trustworthy, suggesting an asymmetrical relationship in trustworthiness (Buchan et al. 2008). However, future research should test this interpretation to exclude alternative explanations to our results such as ceiling effect in trust ratings toward female targets or insufficient power for a small effect.

According to our results, expectation of rejection did not act as a mediator. From our results, it seems that RS is connected to BPD traits exclusively by means of the emotional activation (both anxious and angry) that the idea of being rejected elicits. Even though previous literature documented an association between BPD traits and RS (e.g., Staebler et al. 2011), to our knowledge this is the first study that demonstrates that the cognitive component of RS does not play a role in this association. On the contrary, both the emotional components, anxiety and anger for rejection, mediated fully such association. In other words, our results suggest that the process through which BPD is connected with an untrustworthiness bias has to do with a particularly strong emotional activation when facing

¹ For the mediation of Anxiety product score on overall trust ratings and trust ratings toward male faces, respectively CI: $[-.01, +.01]$, CI: $[-.01, +.01]$. For the mediation of Anger product score on overall trust ratings and trust ratings toward male faces, respectively CI: $[-.01, +.01]$, CI: $[-.01, +.01]$.

situations that could imply social rejection. Such a mechanism points to the prevalence of strong, polarized emotional activations (over cognitions) in explaining the clinical manifestations of BPD and is in line with an object relations conceptualization of the disorder. According to such a theoretical framework, in fact, split and polarized representations of self and others, imbued with extreme negative affectivity, maintain the pathological personality structure characteristic of BPD that interferes with healthy interpersonal relationships (Yeomans et al. 2015).

Our results are not easily comparable with the ones from the two previous studies (i.e., Masland and Hooley 2017, Miano et al. 2013) because they used a composite score of rejection sensitivity, that is the product between the cognitive component of the construct (i.e., expectation of rejection) and the emotional component (i.e., anxiety) and did not assess anger for rejection. However, without this alternative approach, we could have not disentangled the cognitive and emotional components of RS, especially considering that using the composite scores none of the mediation models were significant. Future research should systematically test for mediation effect using both approaches. It would help to clarify the mediating role of rejection sensitivity and its different components. Because our sample was only composed of women and because we did not obtain any untrustworthiness bias for female faces, future research should investigate possible gender effects and specific biases depending on the congruence between the perceiver and the target (same vs. opposite-sex).

In conclusion, our results support the idea of an untrustworthiness bias related to BPD. Moreover, we confirmed the role of RS in such bias but more important only the emotional activation related to possible rejection is involved in such an interplay.

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